[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-0514; Project Identifier AD-2022-00357-E; Amendment 39-22155; AD 2022-18-04]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain General Electric Company (GE) GEnx-1B model turbofan engines. This AD was prompted by several reports of fuel leaks caused by high cycle fatigue (HCF) cracks found at the braze joints on fuel manifolds, and the subsequent manufacturer redesign of the high-pressure turbine (HPT) fuel hose variable stator vane (VSV) manifold, VSV fuel hose manifold, low-pressure turbine (LPT) fuel hose variable bleed valve (VBV) manifold, and VBV fuel hose manifold. This AD requires removal and replacement of the fuel hydraulic lines. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: www.ge.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this

material at the FAA, call (817) 222-5110. It is also available at www.regulations.gov by searching for and locating Docket No. FAA-2022-0514.

Examining the AD Docket

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2022-0514; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Alexei Marqueen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7178; email: Alexei.T.Marqueen@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain GE GEnx-1B model turbofan engines. The NPRM published in the *Federal Register* on June 3, 2022 (87 FR 33658). The NPRM was prompted by several reports of fuel manifold leaks resulting in multiple flight delays and cancellations on four separate occasions between 2018 and 2021 on airplanes with GEnx-1B model turbofan engines installed. The manufacturer's investigation revealed that variations in braze coverage and braze fillet radii caused high stress concentration factors at the braze block joints, leading to HCF failure in the tube bundles with brazed joints. As a result of its investigation, the manufacturer determined that the HPT fuel hose VSV manifold, VSV fuel hose manifold, LPT fuel hose VBV manifold, and VBV fuel hose manifold required redesign by replacing all braze features and cushioned clamps with block clamps. In the NPRM, the FAA proposed to require the removal and replacement of the fuel hydraulic lines. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from five commenters. Commenters included the Air Line Pilots Association, International, American Airlines, The Boeing Company, United Airlines, and an anonymous commenter. All commenters supported the NPRM without change.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting the AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed GE GEnx-1B Service Bulletin 73-0099 R00, dated February 28, 2022. This service information specifies procedures for the removal and replacement of the fuel hydraulic lines. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 298 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Remove fuel hydraulic lines	2 work-hours x $85 per hour = $170	$0	$170	$50,660
Install redesigned fuel hydraulic lines	2.50 work-hours x $85 per hour = $212.50	$232,000	$232,212.50	$69,199,325

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2022-18-04 General Electric Company: Amendment 39-22155; Docket No. FAA-2022-0514; Project Identifier AD-2022-00357-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

General Electric Company (GE) GEnx-1B64, GEnx-1B64/P1, GEnx-1B64/P2, GEnx-1B67, GEnx-1B67/P1, GEnx-1B67/P2, GEnx-1B70, GEnx-1B70/75/P1, GEnx-1B70/75/P2, GEnx-1B70/P1, GEnx-1B70/P2, GEnx-1B70C/P1, GEnx-1B70C/P2, GEnx-1B74/75/P1, GEnx-1B74/75/P2, GEnx-1B76/P2, and GEnx-1B76A/P2 model turbofan engines with engine serial numbers 956-102 through 958-775, inclusive, 958-795, and 958-802.

(d) Subject

Joint Aircraft System Component (JASC) Code 7310, Engine Fuel Distribution.

(e) Unsafe Condition

This AD was prompted by several reports of fuel leaks caused by high cycle fatigue cracks found at the braze joints on certain GEnx-1B fuel manifolds. The FAA is issuing this AD to prevent fuel leaks on the variable bypass valve and variable stator vane fuel hose manifolds. The unsafe condition, if not addressed, could result in engine fire and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

At the next engine shop visit after the effective date of this AD, remove and replace the fuel hydraulic lines using the Accomplishment Instructions, paragraphs 3.A and 3.B, of GE GEnx-1B Service Bulletin (SB) 73-0099 R00, dated February 28, 2022.

(h) Definition

For the purpose of this AD, an “engine shop visit'” is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine case flanges, except for the following situations, which do not constitute an engine shop visit:

(1) Separation of engine flanges solely for the purposes of transportation of the engine without subsequent maintenance.

(2) Separation of engine flanges solely for the purposes of replacing the fan or propulsor without subsequent maintenance.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards district Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j) of this AD and email to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

For more information about this AD, contact Alexei Marqueen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7178; email: Alexei.T.Marqueen@faa.gov.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) GE GEnx-1B Service Bulletin 73-0099 R00, dated February 28, 2022.

(ii) [Reserved]

(3) For service information identified in this AD, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ge.com; website: www.ge.com.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on August 17, 2022.

Christina Underwood, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2022-19189 Filed: 9/6/2022 8:45 am; Publication Date: 9/7/2022]